

TEDxMidtownNY

Transcript of remarks by
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7 p.m., Thursday, September 14, 2010
The Explorers Club
New York City, New York

Okay. Well, thank you all. It is wonderful to be here. Heard about TEDx for a long time, the Space Explorers for a long time, know the Space Frontier Foundation very, very well, and I was absolutely honored to share the stage with Anousheh Ansari, who has actually done what it was I set out to do, and I would love to do. As she was saying, it's hard to follow Carolyn Porco's talk; it is the same for me to follow both, as well as Steve's.

The message of exploration that was woven through especially both of the space talks is one that really just resonates for me and for NASA. And while I don't think I can be a card carrying member of the Explorers Club, unless you give points for exploring the depths of the bureaucracy or the heights of congressional statements that we continue to have about our plans, exploration is sort of synonymous with NASA, and we are absolutely thrilled to be a part of the world's exploration efforts.

I have got a personal sense that exploration, as I think is outlined by the previous speakers, is not just people. The excitement of these robotic missions is also unbelievable.

I was upstairs looking at some of the trophies, shall we say, of exploration activities of the past. I asked, "do you have any lunar samples, any Mars meteorites, can we get you a piece of an asteroid we brought back?" Those would be things that I think in our future exploration efforts, we all see as valuable, whether humans pick them up or we have robotic return of some of these things as well.

NASA has been synonymous with exploration, and we had the pictures of our home planet from space. We have had so much of the exploration effort that has been ongoing since our founding, over 50 years ago. I think we are just coming to grips with what that means for the future. I am up here from Washington, so I can't help delving into the bit of the politics of it and to try, since I work for the Administration, to better explain what it is we are trying to do in space.

We still see NASA as having great missions and goals dealing with exploration. If you look upcoming just what we have on the plan, certainly the VW size lander on Mars that we hope to have launching here in the next year, we have the closest images of Mercury we've ever seen, we've got the President stating that we will land humans on an asteroid in 15 years, so we definitely continue to see exploration as a main cornerstone of NASA.

So what inspired me on exploration? This is me, 1969. I'm the short one, and, yes, I still am the short one. My sister and homemade dresses, yeah, matching, special.

We captured the world's attention with exploration at NASA in the '60s. I know it's why lots of us, my generation or older, are in this field, and I guess I argue it wasn't just, you know, what was it that is exciting about this, it was a combination, I think, of doing something new, of doing something that showed world leadership on the technological edge. It was creating a better future, and it was doing something meaningful we were part of, our answer to the Cold War, our answer to Sputnik, our answer to a young President saying we do these things not because they're easy, because they're hard. And in many ways, NASA has been sort of trying to live up to this ever since.

Now, this is my personal attempt at living up to this. I have a picture of me in the spinning chair, like you had, Anousheh, but I wasn't smiling during mine.

So I showed me after doing the 8 Gs and this. This is, frankly, a lot easier for me than a spinning chair. I made an awful lot of this very short period of time I did in the medical testing to be "Astro Mom," and like Anousheh, I feel like I was doing it for many of the reasons you outlined, but in particular, I had always felt that for me, exploration was, as I said, not just about those people are doing it, but the wider public participation.

I had worked for a client who was planning to pay his way. We negotiated for a seat with the Russians on Soyuz. This was actually while Mark Shuttleworth was up. So the second tourist is when I was in Star City doing this, mostly outside Moscow IBP. But I had really a chance when my client decided not to go take the seat, that I felt would attract a general audience to space exploration that was not really as interested.

You know, it's one of those things. I think Carolyn showed it really well, her excitement over the Cassini Huygens mission, and obviously her feeling a little let down that the world did not share that with her. It was not on the front page of The Washington Post.

Normally, when we get on the front page of The Washington Post, it's not for a good day, and, you know, if you're like me, you really, really don't want to appear on the front page of The Washington Post as a political appointee.

But space, at least the NASA part, is paid for by the public, so we need to find a way to reach out to the public more effectively. This was not being paid for by the public. As my client decided not to take the spot, I got an agent - it's very exciting, and the kids thought it was a lot of fun - and we ended up getting sponsors who were planning to help pay my way to go to space as the first sort of average person. I'm quite average, I will assure you, and felt like this would, as the agent felt - now I

realize agents are basically paid to tell you anything they think you want to hear, since Lance Bass had that same experience with his agent and we were both there at the same time being told opposite things by our agents, only because they wanted us to hear that - but in order to get a lot more public attention to the excitement and importance of what we're doing in space, felt this was something that I was willing to personally do.

It was not a lifelong goal to go to space. I still feel like I will have had a wonderful successful life if I do not go to space, but I won't feel like I had a wonderful, successful life if other people don't go to space. And so for me, Anousheh having gone just a few years after this, being that woman who went - and you're not average - but was absolutely, almost for me, just as meaningful as going myself. I feel like we have to open up space to the public, and so I consider myself an enabler, a facilitator of space exploration and sort of made it a lifelong quest.

So, at NASA, we have a number of plans right now to commercialize space in a way that we will be really allowing the private sector to do those things that have become routine. Like, if you can believe it, transporting humans to and from low Earth orbit while we, NASA, again do the hard thing, do the next thing that we were established to do in the 1958 Space Act.

So, if you look at where we see the future, we have a number of capabilities that we know we need to develop as a nation in order to explore in many ways. And it's really our position in that, by developing these capabilities, lowering the cost, investing in technologies that will allow us to actually fly more missions, is a contribution that NASA can make that will be most long felt.

We have been, as I mentioned, trying to re-live Apollo for 40 years now, and Apollo was in a certain place and time when we set a goal and met it, and today, we not only have a more developed private sector, we have the ability to work more effectively with our partners, as we are showing on the International Space Station. And we have the ability to go to many places, hopefully working in new and innovative ways.

We are facilitating prizes with our Grand Challenges, looking at setting out goals for our space program that some combination of the U.S. space agency, NASA, working with others, working with the private sector can help reach.

So we've talked about the Grand Challenges, and we have three basic challenges that we're laying out. The first is to make space a part of humanity's natural environment, to establish, as I was mentioning, capabilities needed to make human space flight routine, economically, and safe - that's a government role - and then you allow others to go out and do the challenging things.

Our second Grand Challenge is to manage space as a natural resource. It's our job to assure responsibility for managing the space environment as we currently manage

our environment on Earth, and I have said let's set a little higher bar than that. Things like portable and economical energy on demand; those are the kinds of things the government should be providing in space.

And third, finally, is to blaze the trail to the universe. We will extend the limits of humanity's knowledge and abilities as far as they can go; for example, understanding the laws of the universe and discovering life and Earth like worlds. As Carolyn mentioned, it's one of the Holy Grails, the Grand Challenges, that sets the NASA strategic vision.

So one of the ways we do this is by trying to get new ideas, as I mentioned, and be open to the best innovations. You know, DARPA has done a really good job with things like crowd sourcing and getting the best minds to work on some of these Grand Challenges, and we have the ability now to do challenges. This is the Google Centennial Challenge that was recently won. So we're not just planning to do new things. We're planning to do them in new and unique ways.

I also believe, as has been outlined previously, that exploration allows us to explore and learn more about ourselves. One of the things that we have learned when we go to space is we didn't even know what we didn't know. So, as we go to space, things like water going with you is something that we take for granted here on Earth and space. It's very valuable, so we learn to recycle water better through those challenges than we have here on Earth.

Think of the implications of that. We recently had a conference at NASA. We're calling the whole series "LAUNCH," but this one was on "LAUNCH: Water," and we hosted a dozen or so innovators who take a lot of the new technologies and look at how we can solve our water problems here on Earth using some NASA technologies and some technologies inspired in many other ways. Our next symposium is on "LAUNCH: Health," specifically looking at those contributions our NASA technology investments have made toward human health, and we have future ones planned.

NASA has maybe one of the best brands in the world, certainly as a government agency. And just the very excitement of that brand helps bring the best minds in the world together, and we need to take advantage of that overall for the benefit of society, the very society who, of course, pays for everything we do. So NASA does play many roles, the exploration as well as turn around and looking back, as those early explorers did, and took a picture of the blue marble.

There will always be a government role, in my view, for space exploration as we go further, but we are looking to partner with industry in new ways. Some of the corporations and individuals you've talked about already tonight, like Burt Rutan, the X PRIZE with Peter Diamandis, and people who have been leading the effort in doing private sector things in space for a long time, we are really believing that we are at a point where NASA can turn over some of this, more routine activities, to the private sector. And what happens then?

I have a background, political science and economics. I don't know anything about anything, right? And on the political science side, I really do believe, as NASA spends public money, it is our job to work more effectively with the public, so that they understand the value of the space program and, what a concept, hear from them what they think we should be doing providing that value, working through the nation's leadership, because we're a democracy, to make sure we get the resources to be able to do that.

On the economic side, very proud of our capitalist nation, we look at those kinds of things that the private sector can do. They bring in innovations. They open up new markets. They then have more hiring, more high tech wonderful jobs, that leads to a growing economy. This is the concept of commercial space. We do not believe, in fact, that we are turning over the space program to China. We believe the opposite is true, that we will be, again, back on the Moon in many ways. We are working with Google Lunar X PRIZE. If there are private companies going to the Moon, what should NASA do? Well, maybe we could buy some data because we're interested in continuing to study the amazing things that are going on, on the Moon, that we've learned about. Maybe we don't need to build, develop, and launch every single mission all by ourselves every time that we do. Maybe we can have instruments going with some of our partner agencies around the world.

Again, tough time in Washington now to talk about change, we really believe these are the kinds of things that have been coming, and they are necessary to having us, as Secretary Gates talks about, not fighting wars of the past, be ready to fight wars of the future. I think our space program needs to not be reliving the space program of the past. It was a wonderful space program, but we need to be enabling that space program of the future.

Well, in 1968 - well, maybe '69. Who knows when these girls were around? People did, as I said, feel this connection to space, and even the '58 Space Act outlined that one of our goals is to communicate better with the public about what it is we do. Again, NASA is doing a lot of things differently. This is, for instance, an icon, a spacecraft, an unmanned aerial vehicle, which we are using, putting instruments on this to get some of the things that maybe satellite data would have done before.

We've flown over the Gulf oil spill and provided a lot of data to agencies and researchers who needed that information. We fly over hurricanes, and we're going to have on this, I think, our first bilingual chat in Spanish and English with a pilot who, of course, is on the ground looking at wildfires. We help with firefighters and are trying to connect some of these research aircraft with actual things that we need done here on the planet.

We're also encouraging student participation in our missions in so many ways. The student dust collector here is designed and built by University of Colorado students and is actually aboard New Horizons, headed for that, what formerly was known as

Planet Pluto, as Carolyn said, and the device maps the density and variation of dust particles in the solar system. It's operated by students who get hands on experience.

And we're encouraging the younger generation of computer geniuses to take our data and run with it. Again, it's paid for by the public. It's made available to the public as soon as we can get it out. We're open, using open source software that is providing free access to more and more people.

We do Tweetups. Even mine, there were people there. I know; it's shocking. The astronaut Tweetups, however of course, are our most popular. I have to give my quick astronaut story here. The astronauts came to Washington the other day, and I have this ongoing debate with them. I want them to wear their flight suits. I mean, who wouldn't want to wear their flight suit? I guess Anousheh would probably say it's not that fun, but to those of us who don't have them... But for me, when you're going to Capitol Hill as an astronaut, frankly people don't really know who you are unless you're wearing your space suit.

So, you know, that's a little hard for astronauts to know they're not world recognized, but we were taking them to see the President. And only because you mentioned it, I had to tell this story.

I show up at the White House, and that is the one place where we said, "Okay. You don't have to wear your space suits to the White House if you really don't want to because the President knows you're astronauts. He's going to get the briefing." And I show up, and they're all in their blue suits, and I was just beaming. I'm like, "You guys, it is so nice. Thank you so much." "Oh," they said, "Well, we didn't all have the dark suits. We didn't know we were seeing the President." They were mad because they said, "We feel like plumbers."

"Okay. You do not look like plumbers. The President is not going to think you're there to fix the pipes."

We walk in, and, of course, what does the President spend the first time there talking about but the suits and they're so fabulous and I want one and maybe I can go to space someday. And they said, "Well, you know, it seems like if Lori has her way, you have to pay your way in the future."

Seriously said that to the President. And I said, "Well, he's going to be making money when he leaves. He can buy a ticket. I have no problem with that."

But then I told them I thought that we had for a long time talked about sending world leaders in space for a peace negotiation, and he lit up. He had never heard it, and we talk about this stuff all the time. He's like, "Yeah?" And he's looking at his Secret Service guys, "You guys going to let me do that?"

And I think they were all saying, "Well, you're going to need to take your detail, and we will be there."

So we do have continuing, exciting missions coming up. We are getting ready, as I mentioned, to go back to Mars with that car sized Rover. Boy, that will be a happy day when that Sky Plane lands gently on the Martian surface and on to Jupiter and to Pluto.

We have a number of participatory programs like Desert Rats, you've probably heard about. We go to the places that simulate as much of the Martian type terrain as we can. These were also vehicles used in the inaugural parade of the President. That was an exciting thing, too, so, you know, I got to do every shtick I can for the political side of this.

We have a number of other missions. This is EPOXI, a Deep Space Impact spacecraft that hit a comet a couple of years ago, and it's continuing, and it will reach the Comet Hartley 2 just in another two months, in November.

And then this is R2 that we're launching on the next Space Shuttle, lifting a 20-pound weight there. I told people, "Was that a 20 pound weight that is on there? Impressive," but then they told me he could hold it there forever, so I thought, well, that's better than my...

And the MESSENGER spacecraft will be the first to orbit Mercury.

Now, looking back at Earth, as we've talked about, we have an amazing, wonderful planet here where we know life exists, and we have learned a tremendous amount about Earth from looking back from space. We've studied ice sheets and carbon cycles and climate change and the many processes of our planet.

But, ultimately, it's so interesting that all of us sort of start and end with this. Of course, we turn ours into a movie at NASA, we great graphics people. That's how we simulated the whole Apollo exploration. You guys know that.

So my other quick OMB story is that as we went and talked to them about exploration plans and going to an asteroid, one of them asked after, as we told them the budget, "How much for that movie version?"

Ultimately, we do explore to learn more about ourselves. We are helping leave the world better than we found it. That is why NASA was formed. That is our rich history for 50 years, and, ultimately, I believe it's our future. Our generation grew up wanting to leave the world better than we found it. I believe that is what excites all generations, and for NASA to continue to be exciting and to be able to be that beacon on a hill for exploration of all kinds, I think we need to continue to really connect with the public, not just our youth. Those people who recognize we are an exploring species, and we will not only participate, as Anousheh, as some people can

personally as explorers, but we - our hearts, minds, souls - go right along with whatever explorers we send into the universe.

So thank you very much, and I look forward to your questions.